



Canadian Natural

**PEACE RIVER
2018 WELL INTEGRITY
PERFORMANCE
Scheme Approval #8143**

April, 2019

PREMIUM VALUE. DEFINED GROWTH. INDEPENDENT.

Agenda

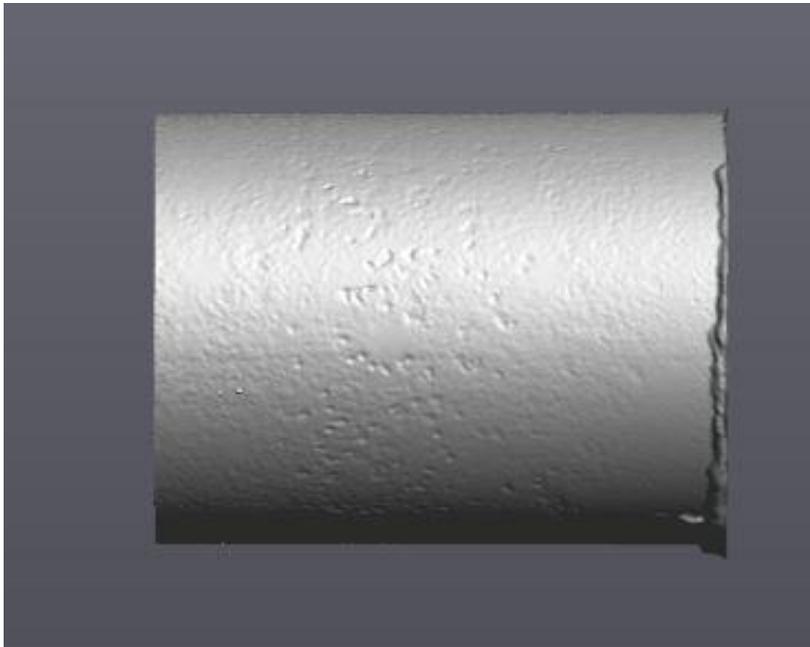
1. 2018 Casing Integrity Summary
2. Casing Integrity Initiatives

2018 Casing Integrity Summary

- No casing failures or well integrity issues on any thermal or utility wells
- All disposal wells passed packer isolation tests in August
 - 102/14-25-085-19W5M [well 322]
 - 102/16-23-085-19W5M [well 323]
- Completed casing at-grade corrosion repairs on Pads 32 and 33 (cut out and replacement)
- Two external, at-grade, casing corrosion checks run on Pad 22 wells prior to return to steam:
 - wells 22-01 and 22-02 (August).
 - no concerns identified; all wall losses on exposed primary barrier casing were well within acceptable.
- No scheduled, preventative, integrity work in 2018
 - no downhole well integrity logs required or run in 2018

External Casing Inspections - methodology

- Laser map and pit gauge used to assess amount of wall loss (22-01 prod'n casing):



- UT used to confirm remaining wall thickness at locations of deepest pit(s).



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**2018 PEACE RIVER
WELL INTEGRITY INITIATIVES**

2018 Initiatives

- Continue to monitor for external corrosion on thermal wells; take appropriate action where potential concerns identified
- Future risk mitigation:
 - Updated and issued internal Thermal Well Casing Integrity Protocol document (approved in 2018)
 - Issued new internal Thermal Well External Casing Corrosion Management Protocol document (approved in 2018)
 - Training provided to all stakeholders on the documents



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